

U.S. Serial No. 09/622,299
Attorney Docket No.: HES 2 0001Amendments to the Claims

Claims 1-11 (previously canceled)

12. (canceled)

13. (re-presented - formerly dependent claim 13).

A method
according to claim 12 for the production of nanomaterial particles comprising the
steps of:

synthesizing nanomaterial particles in solutions of complex liquids from
suitable precursors, which precursors are selected from the group consisting of
suitable surfactants, alkoxides, and metal salts, by a suitable chemical reaction
under mild conditions, wherein the water in the solution is nonfreezing water; and
preparing fine colloids dispersed in various polymer solutions.

14. (currently amended) A method according to claim-12 13, wherein
the nanomaterial particles have a diameter of 1-5 nm.

15. (currently amended) A method according to claim-12 13, wherein
the mild conditions are atmospheric pressure and a temperature range of room
temperature to 70°C.

16. (currently amended) A method according to claim-12 13, wherein
the chemical reaction is a hydrolysis process.

17. (currently amended) A method according to claim-12 13, wherein
the chemical reaction is a reduction process.

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18. (currently amended) A method according to claim-42 13, wherein the chemical reaction is an exchange process.

19. (currently amended) A method according to claim-42 13, wherein the solution comprises an organized water-organic surfactant.

20. (currently amended) A method according to claim-42 13, wherein the solution comprises a microemulsion.

21. (currently amended) A method according to claim-42 13, wherein the solution comprises liquid crystalline media.

D' 22. (currently amended) A method according to claim-42 13, wherein the solvent is selected from the group consisting of a suitable hydrocarbon, a chlorinated hydrocarbon and ether.

23. (currently amended) A method according to claim-42 13, wherein the hydrocarbons are selected from the group consisting of octane, decane and dodecane. 22

24. (original) A method according to claim 22, wherein the chlorinated hydrocarbon is 1, 2-dichlorethane.

25. (original) A method according to claim 22, wherein the ether is ethylether.

26. (currently amended) A method according to claim-42 13, wherein the surfactants are selected from the group consisting of trioctylmethyl ammonium chloride (aliquat 336), dioctyldimethylammonium bromide (DDAB),

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cetyltrimethylammonium chloride (CTAB); sodium bis-(2-ethyl-hexyl)-sulfosuccinate;
and poly-ethoxyethylene-10-oleyl ether.

metal oxides and metal precursors
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27. (currently amended) A method according to claim ~~12~~ 13 wherein
~~metal oxides and metal precursors~~ are selected from the group consisting of
~~triethoxy tetraethoxy~~ silanes (TEOS); ~~trimethoxy tetramethoxy~~ silane (TMOS); Al, Zr
isopropoxides; Fe, Mg and Al chlorides; Al and Mg acetates; Na and K orthosilicates;
~~Zr-oxychloride~~ oxychloride and transition metal salts of Fe, Co, Ni, Cu, Ru, Rh, Pd,
Ir and Pt.

28. (canceled)

29. (original) A method according to claim 17, wherein the reducing
agent is selected from the group consisting of sodium formate; hydrogen; and
alcohol.

30. (currently amended) A method according to claim 29, wherein
the alcohol is selected from the group consisting of methanol, ethanol, and
isopropylalcohol.